

## Green Synthesis of Polyimide Aerogels

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Polyimide aerogels (PIA) are high-performance nanoporous particles with high thermal and chemical resistance, high mechanical properties, and good dielectric properties. Due to their excellent properties, polyimide aerogels can be applied to various application fields, especially for aerospace industry, electrode for secondary battery and fuel cell, and thermal insulator. However, high boiling point solvents such as N-Methyl-2-pyrrolidone (NMP) used in preparation of poly (amic acid) cause several environmental problems and thus limit the application of polyimide aerogels. Here, we report environmental-friendly synthetic method of replacing NMP used in preparation of poly (amic acid) to eliminate the related environmental problems. Since high boiling solvents are harmful and hard to recycle, water was used as economically and environmentally suitable substitute for process solvents. Comparison of morphology between pristine PIA and NMP-free PIA were conducted using FE-SEM. Porous characteristics of NMP-free polyimide aerogels were analyzed by BET and BJH method. TGA and FT-IR were used to verify the completeness of imidization.